

NOVEMBER 1961

50 CENTS

COUNTY AGENT VO-AG TEACHER

THE LEADING MAGAZINE FOR AGRICULTURAL LEADERS

HOW TO EVALUATE VISUALS

WHAT KIND OF
SLIDE PROJECTOR
SHOULD I PURCHASE?

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Says Mr. William R. Hornbaker, Director of Instructional Materials of the new Senior High School under construction in Holland, Michigan.

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Kodak Pageant Projector >

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His hog records show feed cost \$7.48 per 100 pounds pork

"MoorMan's Mintrates* and corn consistently produce low-cost pork on my farm," says Alvin Ortgies, Jones County, Iowa. "I market 300-350 hogs a year and raise 'em all on MoorMan's."

"Records on my last bunch of 112 hogs show my feed cost to produce 100 lbs of pork was \$7.48. Of this, only \$2.39 was out-of-pocket cost for MoorMan's. I figured my corn at \$1.12 per bushel."

Return for corn— \$2.72 per bushel

"These hogs averaged 216 lbs at market and consumed 68,500 lbs

of feed," continues Mr. Ortgies. "So it took only 2.85 lbs of feed for each pound of pork marketed."

"Looking at it another way, figuring hogs at \$15, MoorMan's Mintrates helped me get back \$2.72 for each bushel of corn fed."

Mr. Ortgies' figures, of course, do not include the value of the sows' milk or the cost of the sows' feed. Cost of sows' feed figures at \$3 per pig, breeding to weaning based on a 9-pig litter average.

Feed cost records are valuable "tools"

An important word in Mr. Ortgies' statement is "records." They are "tools" he uses to determine profit or loss on his pork operation. Not only are his records of feed costs important; so are his records of breeding and management practices, which serve as guides to future operations.

On the 1280 acre MoorMan Research Farms, last year, records of feed consumption and gain were kept on over 2000 hogs to help develop feeds to give better yields and faster gains.

A sharp pencil and well kept records can be valuable to you, too. Only by keeping complete records of your feeding operations can you determine which feeds help you get the most pork and the fastest gains for your feed dollars.

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nine models prices start at \$149⁹⁵



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COUNTY AGENT VO-AG TEACHER

NOVEMBER 1961

Vol. 17 No. 11

THE LEADING MAGAZINE FOR AGRICULTURAL LEADERS

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There are hundreds of different makes and models of slide projectors on the market today. We've asked our audio-visual editor to discuss some of the leading types in detail.

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COUNTY AGENT AND VO-AG TEACHER

SULPHUR—a 'Must' for many Plants and Soils



Potato Plants: left—showing marked sulphur deficiency symptoms; right—sulphur included in plant nutrient. Courtesy Hunger Signs in Crops; USDA.

only 1% plus BUT SO INDISPENSABLE!

Countless analyses of many kinds of normal crops destined for both human and live stock consumption show a persisting sulphur content ranging upwards from 1%. Certain truck garden vegetables, for example, have a sulphur content ranging up to nearly 2%, based on dry matter analyses.

These percentages actually indicate each plant's *natural hunger* for Sulphur...a small amount perhaps, but if the plant needs it, should it be denied?

With so much emphasis being placed on the N, P_2O_5 and K_2O plant nutrients, the need for other elements may be—in fact, in many cases is being—overlooked. Sulphur is a required nutrient! How Sulphur fits into the plant nutrient and soil conditioning picture is outlined in a new illustrated TGS brochure "Sulphur in Plants and Soils". If you are interested in the Sulphur phase of this broad subject, write us. We'll be glad to send copies for yourself and associates.



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ag leaders washington

Latest word from the Capitol—by John Harms and George Peter

Ag workers urged to "get with it" on rural face-lifting program

YOU ARE GOING to have to "get with it" or you'll be left out of it. This is official advice to county agents and vo-ag's. "It" means new conditions you are going to have to work under as a result of actions the Government is going to take. "Official" means views we are getting from the federal agencies that are going to play a prominent part in bringing about the new conditions.

What is getting under way at very high levels is a planned national rural uplift or face lifting of the rural economy. Government agencies taking the lead are Commerce Department, Labor, USDA, and Health, Education and Welfare Department. As long as they are offering Government help, there will be takers. Local lending agencies, chambers of commerce and business, labor, and promoters of all kinds are promising plenty of support.

The Administration feels that boosting the rural economy by hiking farm income won't do the job alone. Along with this must be efforts to stimulate rural industries, relieve unemployment for the farmer and rural youth, and bring outside industry to rural areas. Big cities will welcome the movement as a means of syphoning off population they cannot readily absorb. Grants, loans, and training and retraining programs will be the Government mechanisms offered as aids.

BUT—it also means troubles are ahead. Farmers will have to learn how to stiffen their backs against efforts by developers to convert the movement into willy-nilly farmland grabbing. USDA says the rural community can't avoid the trend and recommends local government agreements and governing bodies to prevent development chaos. But regulatory bodies and commissions often turn into agencies for those they were set up to regulate.

There will also be accusations of "urban sprawl" by those who want to concentrate even more people into smaller spaces. A zoning commissioner might rule that your farm or homeland would make a more desirable factory site or apartment development. To block this, some rural communities have made studies and found that industry may bring more jobs and in-

come into an area but that frequently the tax increases are greater for the established citizenry than the claimed benefits of the "progress" offered.

THE CHANGES WILL BE JARRING, as planners anticipate. In all this you will help the farmer and community adjust to what is coming. Only you will have a bigger job to do. But officials regard this as a challenge—so get ready.

Extension service and HEW leadership in rural education feel it is time to widen the concept of "agribusiness." You'll begin to hear more and more about "agindustrial" or "agindustrial adjustment." This will mean educating the rural and urban community to recognize the place of agriculture, including agribusiness, in industry.

EDUCATIONAL RESPONSIBILITIES for the ag leader will become more important than ever before under the new conditions as we see it. Officials pooh pooh concern in some quarters that this superemphasis on rural uplift may overshadow the need to give farmers more know-how in marketing their products. They call attention to increased efforts the Administration will make to put more and more of the farmer's marketing in his own hands.

What Administration vocational education planners mean when they advise you "to get with it" is that vocational education efforts of all kinds are more and more to be administered as a whole. Vo-ag educational programs at HEW and county agent activities under USDA will be carried on as before, only there will be more planned correlation of effort at top levels between the agencies involved.

Programs to carry out the Area Redevelopment Act are coming more to the fore as a pilot tryout of the new economic uplift plans. The Rural Area Development program that was in USDA is now absorbed in the whole ARA program. HEW will continue to administer vocational education, but Commerce Department determines where development is needed and Labor Department decides what manpower is needed and what is available.

SUL·PO·MAG® *bulletin*

NEWS FOR FARM ADVISORS ABOUT SUL·PO·MAG AND OTHER PLANT FOODS

HARVEST TIME 1961!

Record high yields of several crops again demonstrate the ability of farmers to translate the latest findings of science into efficient farm practices. Yields are considered by an increasing number of farm analysts to be of prime significance ... more so than total production records.

Wisconsin research further documents the essential role of magnesium. Latest studies on potatoes show the application of sulfate of potash-magnesia results in significantly higher yields, compared with other fertilizer combinations.

Fourteen county agents will continue their professional training through scholarships received (during the 46th annual meeting of the National Association of County Agricultural Agents) for demonstrating the effective use of communications in extension work. The scholarships are sponsored by International Minerals & Chemical Corporation. The program has received enthusiastic acceptance in the five test states during the first year of operation!

SUL-PO-MAG BOOSTS YIELDS OF WISCONSIN POTATOES

The application of sulfate of potash-magnesia to Wisconsin potatoes resulted in higher phosphorous uptake and, in general, a higher yield. This significant discovery was made in a series of nutritional experiments conducted by Dr. Kermit C. Berger, Professor of Soils at the University.

Acclaimed as one of the foremost advances in the potato industry in years, Dr. Berger's extensive research is being studied by both producers and processors of potatoes.

Wisconsin now recommends the 10-35-5S grade of fertilizer for potato production. (The 5S designates sulfate of potash which can be supplied by Sul-Po-Mag or potassium sulfate.) This grade was developed specifically for potatoes as a result of this research.

Exceptionally good yields were obtained by using 10-35-5S fertilizer with Russet Burbanks topping the list at 942 bushels per acre of which 80 percent were U.S. No. 1, Size A grade. Chippewa's yielded 761 and Kennebec's reached 588 bushels.

Phosphorous appears to be the nutrient element most difficult for the potato plant to extract from the soil and from fertilizer. So, phosphorous content of potato soils tends to build up, yet it is necessary to apply quantities of fertilizer phosphate in order to get the maximum profitable yield of potatoes.

(continued on next page)



Dr. K. C. Berger, Department of Soils, University of Wisconsin, in his greenhouse. Dr. Berger is Chairman, Trace Element Committee, National Council of Fertilizer Application, and recipient of the "Man of the Year Award" from the Wisconsin Potato Growers Association.

(The SUL-PO-MAG bulletin continued)

Dr. Berger and his colleagues found that highest phosphorous content in the potato plants was obtained with the broadcast application of sulfate of potash-magnesia. Applications of potassium chloride in the row definitely lowered the phosphorous content of the plants.

U.S. FOOD EFFICIENCY TERMED COMMUNIST DETERRENT

The wide disparity in efficiency of food production was called "the single most important deterrent to the communists' aspiration for world domination," by A. E. Cascino, Vice President, Marketing Division, IMC. He addressed the national officers and committee chairmen at the 46th annual meeting of the National Association of County Agricultural Agents.

Cascino added that as long as the Russians must keep more than half their people engaged in the production of food, they can never provide the man-power necessary to maintain a highly industrialized economy.

MAGNESIUM IMPROVES FRUIT QUALITY

Increased application of magnesium and calcium offsets bitter pit in apples, a physiological disorder, according to research by G. C. Oberly and A. L. Kenworthy, Michigan State University at East Lansing.

The work, conducted in Michigan, shows that, while the importance of potash is fully recognized, not enough attention is given to the need for magnesium. As a result, Oberly and Kenworthy believe the reduction in magnesium uptake is directly related to bitter pit.

They recommend that potash fertilization be balanced with magnesium and calcium.

Sul-Po-Mag contains 18.5% magnesia and 22% of potash in the premium sulfate form. S.P.M. provides a sound approach to the problem of controlling bitter pit.

Research is currently under way at Rutgers University, supported in part by an IMC co-operative research aid, to uncover new relationships between the uptake of plant nutrients and the quality of fruits and vegetables.

GROWING NEED FOR SULFUR

Oregon State Agricultural Experiment Station research shows that, on well limed and fertilized soils, more attention should be paid to supplying sulfur. Scientists have discovered that both lime and phosphate fertilizer increase sulfur movement or reduce its retention in the soil. Furthermore, sulfur was found to move quite rapidly through certain soils — especially sandy loam.

WHO CARES ABOUT MAGNESIUM?

Since nitrogen, phosphorous and potash are considered the primary plant food elements, who cares about magnesium? The answer — 81% of the farmers queried in a recent state survey said they feel it's important to use a fertilizer which supplies magnesium.

In the same group, 68% said they knew about Sul-Po-Mag — the principle source of water-soluble magnesium plus potash in the premium sulfate form.

late research

- Dairy cows that eat "a la carte" produce more milk
- Drugs may be key to faster removal of chicken feathers
- New weather stations are boon to farmers in Midwest

Some relief from the conventional—but tedious—way of harvesting apples by hand from ladders is in sight. This is the report of F. M. Cunningham, agricultural engineer at Virginia Polytechnic Institute. He says several self-propelled boom platforms are on the market for use both in picking and pruning. However, the platforms cost around \$1500 or more and the speed of picking isn't greatly increased.

Mounting a bulk bin on one of these machines and using a canvas tube or funnel to conduct the apples down to the bulk bin has proven more successful. Picking speed was almost doubled over conventional methods.

Elevated decks mounted on tractors, trucks, or other wheeled conveyances also can be used to replace ladders. But refinements still need to be made to reach a higher level of efficiency.

The come-and-get-it method of feeding dairy cows has found favor in studies at University of Delaware. Tests proved that cows on pasture consume more forage in a day than those fed green chop. Also, they select more digestible parts of the plant.

The average digestible intake of a grazing cow is more than 5 pounds a day greater than one which is hand fed. This additional consumption will provide enough nutrients to supply 16 more pounds of 4% milk daily.

Microscopic studies of developing corn plants definitely show that lack of boron can cause blank stalks and barren ears. Researchers at University of Wisconsin studied the development of flower parts in corn plants grown with various amounts of boron in the nutrient solution.

With a little boron—0.03 ppm—cells in both parts—tassel and ear—were damaged. This caused poor kernel development. A boron level of 0.25 ppm supported normal development. When boron was completely lacking, both tassel and ear parts showed little or no growth and differentiation of cells. This resulted in blank stalks—no ears and no tassels.

Basic research, aimed at finding better ways to remove feathers in cleaning chickens, is being conducted at Michigan State University. Researchers tested various drugs on birds to see the effect of feather release and to indirectly determine which part of the brain is involved in the feather release mechanism.

In the tests the researchers used a spring scale to measure the pulling force required to remove feathers from their follicles before and after treatment with the drugs. A substantial decrease in feather pulling force occurred with sodium pentobarbital, chloroform, ether, procaine, atropine, sparine, and chlorpromazine.

A new whole-grain wheat wafer, designed as a basic survival food for people confined to fallout shelters following nuclear attack, has been developed by USDA. These wafers pack a lot of food value into a small space, are quick and easy to serve; and will keep for five years or more if properly made and packaged. U. S. scientists say the abundant and low-cost grain supply in the U. S. would make it practical to stockpile this food.

Tractor use is given major credit for increased farming efficiency, according to Guy W. Gienger, extension specialist at University of Maryland. A recent issue of *Agricultural Engineering* says, "The introduction of the internal combustion tractor on American farms early in this century was in fact the 'open sesame' that set in motion the flood tide of mechanization of Agriculture."

In 1959 5.16 million tractors were reported on American farms, more than a two-fold increase since 1945.

Apple blossoms can be thinned efficiently and economically with a chemical now recommended as an insecticide. In more than 100 USDA tests, Sevin was consistently effective in thinning five major varieties—hard-to-thin Golden Delicious and Jonathan, and easily-thinned Red Delicious, Winesap, and Granny Smith. However, Sevin has

not yet been registered for use as a blossom thinner, and cannot be recommended until such registration has been granted.

Soil fumigants can be used effectively to prevent the spread of oak wilt from tree to tree, say C. R. Drake and J. E. Kuntz, forest researchers at University of Wisconsin. The fungus that causes oak wilt often spreads from an infected tree to a nearby healthy one through underground root grafts—roots of the two trees that grow together.

By using methyl bromide or vapam, the researchers found that a chemical barrier formed around the infected roots. Toxic gases killed short sections of the roots and prevented direct contact between trees. The chemicals also caused a plugging action in the water transporting vessels of the roots which prevented solutions, and presumably fungi, from passing through the killed portions.

Making mama more comfortable in the farrowing house paid off this summer at Iowa State University's swine nutrition farm. She received a special air bath over her head and back.

The air bath method, called "zone" ventilation, required one-fourth to one-third less total air-moving capacity than required with the popular exhaust fan. Zone-ventilated sows ate regularly and were more comfortable up to temperatures between 80 and 85 degrees, while sows under general ventilation on the other side of the house became restless and lost their appetites.

Ten new weather data collecting stations now in operation in Wisconsin and neighboring states are the first in an eventual network of 100 such installations designed to collect exactly the kind of weather information needed for agricultural and other biological purposes. J. Y. Wang, University of Wisconsin weather specialist, set up the stations with the co-operation of the university, Wisconsin Cannery Association, U. S. Weather Bureau meteorologists, and various agricultural specialists in neighboring states.

WHAT TYPE SLIDE PROJECTOR SHOULD I BUY?

By GEORGE F. JOHNSON

THIS IS ONE of the most frequent questions asked by ag workers today, and there is no one positive, definite answer.

As you can see from the accompanying tabulation, which is just a sampling of a hundred or more different makes and models on the market, the offerings vary greatly in facilities, in weight, and in price. Many unique accessories cannot be easily tabulated, so we will discuss the models listed in more detail.

The **Airequipt Superba 77** is a lightweight fully automatic projector that also contains a built-in manual slide carrier. The projector can be set to show slides automatically at from two to four second intervals. Other models are available.

AnSCO's Anscomatic projector has an iris diaphragm dimmer on the lens which enables the projectionist to control manually the amount of light for each or any slide. Overexposed slides can be dimmed down, and underexposed pictures can be brightened up. This facility is standard equipment at no extra cost. The projector can be set to show slides automatically at any interval from 5 to 60 seconds per slide.

The **Argus Electromatic** has remote focus control as well as remote slide changing, and can be set for a fully automatic timed cycle.

The **Bausch & Lomb Balomatic 655** has this extra feature: It can be synchronized with a tape recorder at an extra cost of \$29.50. It also has variable timed automatic changing and iris diaphragm to regulate the projected

light. Model 755 projects $2\frac{1}{4} \times 2\frac{1}{4}$ -inch as well as 2×2 -inch slides.

The **Bell and Howell Headliner** is a manually operated machine made to meet the demands of ag workers who are unable to adapt their slide programs to automatic projection. It will project both 2×2 -inch and $2\frac{1}{4} \times 2\frac{1}{4}$ -inch slides. The **Explorer 754** is one of several automatic projectors made by this company. A Filmovara Zoom lens can be provided with this equipment at about \$30 extra. The machine can be automatically timed from 5 to 60 seconds per slide. The remote control is also the projection pointer. (Zoom lenses are also available on the Argus, AnSCO, Kodak, and Bausch and Lomb projectors.)

The **Eastman Cavalcade 510** in addition to being fully automatic has forward or reverse manual slide editing with trays in the projector. It also has a 300 or 500 watt illumination switch. Projection can be timed at 4, 8, and 16 seconds. Two types of trays are required: 40-capacity for cardboard mounts and 30-capacity for glass-covered mounts. The **Carousel** is the most recent projector by Eastman. It carries 80 slides in a rotating drum on top of the projector so that projection can be continuous if desired. It can be remote controlled.

Polaroid's Model 610 is another manually operated machine built primarily for $2\frac{1}{4} \times 2\frac{1}{4}$ -inch slides but it can be easily adapted to the 2×2 -inch slides by purchase of a second slide carrier at \$4.95.

George F. Johnson is audio-visual editor of COUNTY AGENT AND VO-AC TEACHER.

The **Realist 990 Supermatic** is a 45-slide automatic, which can be timed for 5, 10, 20, 30, and 60 seconds. Semi-automatic models are available as low as \$64.50.

The **Sawyer's Electric Eye** projector is unique in that it automatically balances brightness on the screen from slide to slide. As each picture hits the screen, the electric eye in the lens barrel takes a light reading and electronically regulates light passing through the slide by opening or closing the lens diaphragm. The projector has full remote control including forward and reverse slide changing plus focus. Many other models are available.

The **Viewlex V-25-P** is unique in that it provides automatic filmstrip projection. It handles 2×2 -inch slides manually or semi-automatically and either single or double frame filmstrips. The cost is \$109.50. By the addition of \$39.95, it is possible to secure for this equipment a remote control filmstrip mechanism. The **V-500-P Model** is a manually operated machine for 2×2 -inch slides, single and double frame filmstrips. A special feature is the magnifying optical pointer.

To summarize, experience seems to indicate that ag workers should have slide projectors with at least 500-watt projection capacity. The projectors should be sturdily built, compact, and not complicated by too many extra gadgets and refinements. The question of automatic vs manual operation has not been fully answered by mass experience of ag workers, but no doubt we will eventually go more generally to automatic equipment.

COUNTY AGENT AND VO-AC TEACHER

Here's a tabulation of some representative models showing the chief features of each:

| SLIDE PROJECTORS | | | | | | | |
|-------------------------------|----------------|--------------|-----------------|-----------------------|----------------------------|---------------|-----------------------------|
| Company and Model | Lamp & Wattage | Lens | Slide Mechanism | Remote Control | Slide and Tray Size | Weight Pounds | List Price (including case) |
| Airequipt Super BA 77 | 500DAK | 4" f/3.5 | Automatic | Yes Change & focus | 2x2"; Supers | 11 | \$124.90 |
| Anso Ansmatic | 500CZA | 5" f/3.5 | Automatic | Yes | 40 2x2"; 2 1/4 x 2 1/4" | 22 | \$119.50 |
| Argus-500 Electromatic | 500CZA | 4" f/3.5 | Automatic | Yes Change & focus | 36 2x2"; Supers | 15 | \$114.95 |
| Bausch & Lomb Balomatic 655 | 500CZA | 5" f/3.5 | Automatic | Yes | 40 2x2"; Supers | 17 | \$119.50 |
| Bell and Howell Headliner 709 | 500DAK | 5" f/4.0 | Manual | ... | 2x2"; 2 1/4 x 2 1/4" | | \$ 89.95 |
| Explorer 754 | 500 | 4" f/3.5 | Automatic | Yes | 40 2x2"; 2 1/4 x 2 1/4" | 16 1/2 | \$149.95 |
| Eastman Cavalcade 510 | 300-500DFR | 5" f/2.8 | Automatic | Yes | 40 2x2"; Supers | 20 | \$159.50 |
| Carousel | 300-500 | 5" f/3.5 | Automatic | Yes | 80 2x2" in drum | | \$140.00 |
| Polaroid Model 61C | 500CZX | 6 1/2" f/5.6 | Manual | ... | 2x2"; 2 1/4 x 2 1/4" | 10 | \$114.70 |
| Realists 990 Super Automatic | 500CVB | 4" f/3.5 | Automatic | Yes | 45 2x2" | 16 1/2 | \$117.50 |
| Sawyer Electric Eye | 500 | 5" f/3.5 | Automatic | Yes Change & focus | 36 2x2" | | Less than \$150.00 |
| Viewlex V-25-P | 500DAK | 5" | Automatic | Filmstrips only | 2x2" all size strips | 12 | \$149.42 |
| V-500-P | 500DAK | 5" f/3.5 | Manual | ... | 2x2" all size strips | 10 | \$114.50 |

There's a slide projector to meet your needs, just make your choice!

Clip Cows Regularly With

**Sunbeam
STEWART
CLIPMASTER
ANIMAL CLIPPER**

**Powerful
Motor
Inside the
Handle**

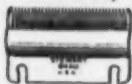
Clip your animals faster, easier with the new Sunbeam Stewart Clipmaster animal clipper. Has quiet, more powerful air-cooled, ball-bearing motor inside Easy-Grip Handle. **No. 51, \$52.95.** (Colorado & West, **\$53.25**).

Sheep shearing attachment converts animal clipper into Shearing Machine which has year 'round use for the farm flock. **No. 31A, complete with cutting blades \$36.75** (Colorado & West, **\$36.95**).

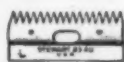
**No.
31A**



Blades for Clipmaster Animal Clipper



Bottom Clipping Blade,
individually packed,
Catalog No. 84AU,
\$3.35.



Top Clipping Blade, In-
dividually packed,
Catalog No. 83AU,
\$2.95.

Sunbeam CORPORATION

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ag leaders speak up

A-V PUZZLERS

Our FFA Chapter is considering the advisability of buying a Polaroid camera. Would you answer the following questions?

- 1) Would you advise us to buy or not to buy? (We have a 35mm Bolsey.)
- 2) What is the best Polaroid model for our purposes?

Thank you.

GLEN DIAMOND
Vo-Ag Teacher
Future Farmers of America
Carbondale, Ill.

Yes, I recommend Polaroid cameras, especially in situations where quick pictures are required for newspapers, or in situations where you have only one chance to get a picture and you must be sure you actually have the picture you want.

The size I prefer is the 3¼ x 4¼ inch. You have the following choices in this size:

| Camera Model | List Price |
|----------------------------|------------|
| 900 | \$199.95 |
| 850 | 179.95 |
| 95B | 139.95 |
| J66 | 110.00 |
| (for 3000 speed film only) | |

In making a selection, I believe it depends upon the amount you expect to use it and the ultimate use of the pictures. If you expect to produce pictures for newspapers, you would do well not to try to economize too much.

If the pictures are largely for file and records with limited personal use, then the cheaper models will do very well.

The J66, as noted, handles only the 3000 speed film which develops in 10 seconds. It is possible that you might find that this camera and film will completely fill your requirements.—EDITOR.

The letters this month concerned with audio-visual problems are answered by Audio-Visual Editor George F. Johnson.

I noticed in COUNTY AGENT AND VO-AG TEACHER that Davega Stores Corporation has an announcement about a Roll-A-Print machine. No address of the company was given. Would you please send me the address of this company as I would like to write for more information concerning this machine.

E. B. HOWTON, HEAD
Agriculture Department
Murray State College
Murray, Ken.

A further check on the Roll-A-Print equipment indicated that it would not do the quality of work we required.

The following is a "new product" which might be worth further study if you are interested in a quick-print-from-negative ma-

chine. The announcement reads:

"New Products: An office copying machine that produces high quality glossy photos from negatives in addition to all other copying chores is among the new products this week. The desk-model Ploymicro Universal Copier is claimed to produce sharp glossies on permanent paper in ten seconds at a cost of less than 10 cents apiece. A larger automatic version, the Arcor, produces up to 500 glossy prints at a paper cost of less than 5 cents a print. Both machines are priced at or below the price of automatic copiers. They are distributed by Burton Mount Corp., New Hyde Park, New York."

I am interested in this equipment and have written for more information concerning it.—EDITOR.

Please send me a box of 50 Duplex 2 x 2 inch Radio-Mats, sufficient for making 100 slides.

Please bill the Marion County Extension Council, Box 278, Marion, Kansas.

PAUL H. MAYGINNES
County Club Agent
Extension Service
Marion, Kan.

I am sending inside the enclosed envelope samples of the duplex mats, their cost and source. This material is not sold or ordered through the COUNTY AGENT AND VO-AG TEACHER.—EDITOR.

INTEREST IN "PLASTICOL"

In an issue of COUNTY AGENT AND VO-AG TEACHER, reference was made in the article, *Modern Ideas for Farm Structures*, to plasticool paint for the roof.

Please send me the name and manufacturer of the particular "plasticool" paint used in the experiment.

J. TEMPLE EVANS
Brenham, Texas

The manufacturer of the plasticool material is Coating Laboratories, Incorporated, 325 South Quincy, Tulsa, Oklahoma.

B. F. R. QUALIFIED

Please let me know what steps to take to continue getting your fine publication. I have recently stopped teaching and am agricultural representative for a local bank. Your magazine has been very helpful as an ag teacher and I know it will be equally as valuable to me now.

J. D. WILSON
Agricultural Representative
Kittrell, N. C.

As an agricultural representative for a bank you are still qualified to receive the magazine. Good luck in your new job.—EDITOR.

COUNTY AGENT AND VO-AG TEACHER

ONE OF A SERIES
OF MESSAGES
TO DAIRYMEN



A day-in-day-out program to control mastitis in your herd

PREVENT...

Regular use of 'Nolvasan,' in a sanitizing solution of one tablespoon per gallon of water, will help you keep mastitis from getting a start and from spreading. Wash udders before each milking. Dip teat ends after milking. 'Nolvasan' destroys mastitis-causing bacteria. Keeps them from invading udder tissues. Stops their progress from cow to cow.

'Nolvasan' speeds the healing of scratches and injuries. Protects from milking to milking. Non-irritating. Will not cause chapping. Keep 'Nolvasan' on hand. Buy it by the gallon from your local veterinarian. Ask him, also, about vaccination with *Biotized Fortibac*.*

*Trademark

Nolvasan®
the better sanitizing agent



TREAT...

'Soxipent' combines 2 selected antibiotics and 2 sulfas with cobalt for broad bacterial action, fast results. Its bacteria-killing ingredients disperse quickly throughout treated quarters while other components soothe and help to heal the inflamed udder tissues.

Mastitis plays no favorites. The better the cow, the greater your loss. Keep a supply of 'Soxipent' on hand. Available in tubes, disposable syringes or squeeze injectors from your veterinarian. Sanitize regularly, treat quickly. To comply with regulations, withhold milk from human consumption for 72 hours after treatment with 'Soxipent.'

Soxipent®
powerful mastitis treatment

FORT DODGE

FORT DODGE LABORATORIES
FORT DODGE, IOWA



appearance . . . accuracy . . . approach . . .
technique . . . economy . . .

HOW TO EVALUATE YOUR VISUALS

By GERALD R. MCKAY

DID YOU EVER ask yourself: how effective were the visuals I used at the meeting? If your meeting was a success, it very likely was partly because the visuals you used helped you communicate effectively.

Psychologists have suggested a number of guideposts for planning, preparing, using, and evaluating visuals. These are criteria that will help you measure the effectiveness of visuals you use. They include appearance, accuracy, approach, technique, and economy.

Each of the five criteria can be divided into a number of subtopics. Appearance includes such factors as visibility, structure, clarity, and appeal. Your visuals have good visibility if they are legible, have good relative brightness, and sufficient color contrast.

IMPORTANCE OF LEGIBILITY

Legibility requires that letters or drawings be large enough so that folks in the back row can see everything you put up. A good rule of thumb is to plan 1 inch in height of letters for every 25 feet of distance to the farthest viewer. This can be increased for emphasis. Weight of lines and proper spacing between words and lines is also important.

Style of letter influences legibility. Plain gothic letters are easy to make. However, for a large amount of text, Roman letters (with serifs) may be slightly quicker to read. Lower case letters can be read faster than upper case, although capitals do provide emphasis and variety.

Relative brightness of your visuals should be within limits of easy viewing. Extreme contrasts between light and dark may be distracting. The greatest amount of contrast can be produced with black and white materials, and in case room light is not good, visuals with considerable contrast are desirable. Using additional floodlights on your material, or, with projected material, using a large projection lamp, may give you sufficient relative brightness.

Color contrast is another key for evaluating your visuals. Colors, well chosen, can help place emphasis, provide continuity, show relationships, and utilize past experience to attract and direct attention.

STRUCTURE OF VISUALS

The structure of visuals refers to distribution and layout of the elements. It deals with the construction of a visual presentation and the relationship between its parts. It involves separating the foreground from the background. Your audience must see what you want them to see.

Structure also includes such visual concepts as grouping and separation. For example, objects shaped alike give the feeling of unity or continuity. Using different sized objects will give the feeling of separation. The terms unity and continuity come from this criterion of structure. Unity and continuity are used particularly in judging booths and window displays.

Another factor included in appearance is clarity. This refers to the ease with which people can understand the visual and get your point. A booth, for instance, would rate high in clarity if one could get its message by merely walking past. A chart or poster would rate high if it attracted attention and got its story across immediately.

Gerald R. McKay is extension specialist in visual education at University of Minnesota.

COUNTY AGENT AND VO-AG TEACHER

A visual has credibility if it is believable and apparently authentic. Does information come from a reliable source? Is it based upon authority? Be sure your inferences are not impossible, absurd, or improbable. A drawing of an insect by a well-known entomologist would have more credibility than one drawn by some cartoonist.

The third major criterion with which you can evaluate your visuals is approach. An effective approach in a visual presentation involves using the right tactics or strategy. Have you planned your approach to fit the needs and objectives of your particular audience?

Your own objectives as they relate to other projects also play a part in deciding what approach is best. For example, in a meeting where you discuss soil testing, it might be appropriate to use the same slides that your audience has recently seen on a television show. The impact of the message on TV would reinforce your message at the meeting. If the attitudes of a community are unfavorable to a certain phase of your program, your visuals might have to be based on a part in which you know there is agreement.

TACTICS IN PLANNING

Pictures of serious tractor accidents might be very effective when used by certain safety specialists, but in other hands would be detrimental. The approach you use in one community might have to be considerably different from that in another, because of religious or political beliefs. Your tactics in planning and using visuals go a long way in determining the effectiveness of the visuals.

The fourth major criterion is technique. Good technique means smooth and seemingly effortless presentation. Visuals should be planned so they follow naturally. There should be no interruption between visual and spoken parts of your program or for finding and setting up visuals. If house lights must be turned off and on several times during a talk, the audience may become irritated and miss your message. Or if your equipment requires several operators, the audience may become more interested in your assistants than in you.

Complicated gadgets and stunts intended to attract interest may actually divert attention. People may wonder what makes a light go on and off, or what makes a figure move up and down, instead of listening to you.

The fifth and last criterion in evaluating your visuals is economy. Your visuals may cost anything from a few cents to many dollars. Economy, however, depends on more factors than just dollars and cents. You must consider the number of times you will be able

to use a visual before it's out of date or physically worn out.

Number of copies you can use directly affects the economy of your visuals. A one-minute television film may cost \$80 to produce, but second and additional prints might run only \$2 apiece. Posters printed by the offset process may cost a dollar apiece for the first 50, but only 15 cents for the next 500.

As a rule there are several ways to present a message with visuals. Some are expensive, while others, just as effective, may be relatively cheap. On the other hand, home-made posters, charts, and exhibits are usually high priced. However, if only one of each is to be used, hand lettering may be the most effective way.

Economy of time for you and your staff is important. It is sometimes more economical to have your secretary prepare a visual than to do it yourself, or hire an artist. And the reverse may be true.

In summary, the five criteria we have discussed provide a broad basis for evaluating your visual presentations. But there are other factors you will want to consider. First, your visuals should all be audience-oriented. Plan the visuals for the audience that will see them. Stay in the subject matter area, and at educational, cultural, and experience levels appropriate to your audience.

Never underestimate the intelligence of your listeners, but never overestimate their knowledge. For example, there is no point in showing pictures of crop breeding techniques to farmers unless they have some knowledge of plant reproduction. An exhibit showing how to control diseases of fruit trees would rate low if it were used with a group in which only a few people were raising fruit trees.

Appeal is the last criterion under appearance. Anything that is different, sudden, or provocative usually draws the eyes of an observer. Visuals which do this well rate high in appeal. An effective caption or label on booths, posters, window displays, or charts is one means of appealing to your audience. A good caption is brief, suggests action, and makes the viewer feel it was written just for him.

Unusual size, shape, color, and effective use of white space are ways of attracting attention. The use of mystery or suspense sometimes will keep an audience alert. Motion, either mechanical or with lights, will also draw attention. Flashers used in a functional way help tell your story and appeal to your viewers.

Trays of growing grass contribute to the fidelity of this visual. Fidelity is a factor of accuracy, a criterion in evaluating visuals.

Second of the five main criteria for evaluating your visuals is accuracy. Accuracy or correctness is determined by fidelity, validity, and credibility.

Fidelity of a visual refers to its approach to reality. Does it adhere strictly to the truth? Is it an accurate and honest visualization of an idea? For example, in models of a kitchen, is the size of the stove in proportion to other pieces of equipment? The best way to obtain realism is to use the actual material or real object whenever possible. Make your points by showing food, cloth, wood rather than pictures of food, cloth, and so forth.

The validity of a visual involves its soundness. Is it capable of being proven? Is it scientifically well-grounded? A set of slides, for example, describing a recommended variety of oats would have considerable validity if it included pictures showing that the variety had been tested several years.

GOOD SEQUENCE ESSENTIAL

A visual may rank high on all of the criteria and yet not be well-co-ordinated with other information media in an overall program. A carefully scheduled sequence is essential if your visuals are to be most effective.

Finally, if your visuals don't rate high in all of the criteria, it doesn't follow that they are necessarily ineffective. Some of the criteria can't be applied to every visual. A poster may involve only one or two, while an illustrated talk could be scored on most of the criteria. Or a visual may have rather low appeal, but still be effective in a situation where appeal is not necessary. You may be completely justified in using visuals that rate high in only one or two categories. The number of ideas they help you communicate is what really counts. ☆



county agents, usa

By VIC CAROTHERS

TEXAS OFFICERS ELECTED

Texas County Agricultural Association at their annual meeting named the following officers for 1961: Front row, left to right: Thurman Kennedy, Graham, secretary-treasurer, J. M. Cooper, Eastland, president, R. B. Tate, San Antonio, first vice-president. Back row, left to right: Charles B. Carpenter, San Antonio, second vice-president, W. B. Griffin, Tahoka, past president.



EDUCATION IN COMMUNICATION

A new scholarship program for county agents designed to increase the effective use of communication in agriculture was inaugurated at the annual meeting of the NACAA. Fourteen county agricultural agents from Arkansas, Colorado, Florida, Illinois, and Maryland were awarded scholarships to attend extension courses in communications.

The program, sponsored by International Minerals & Chemical Corp., is designed to further the county agents' abilities in using communications to bring new ideas and techniques to farmers.



Do you sit down with your local editor occasionally to discuss special county events and what coverage is possible? Here is County Agent George Hamilton of Scotts Bluff, Neb., (left) visiting with Jim Baird, farm editor of the Star-Herald.

HATS OFF TO McDOUGALL

During the 46th annual convention of county agents in New York, R. M. McDougall, NACAA, appeared on the Today show and did a terrific job for the farming industry.

Incidentally, after explaining in detail how one selects vegetables, fruits, and other produce at the market he admitted that Mrs. McDougall actually does the shopping in his household. But he talks a terrific game.



Pride of Walthall County, Mississippi, is County Agent Ansel Estess of Tylertown. He received one of USDA's highest awards—the Superior Service award—for helping his farmers to shift from row crops to livestock. The shift has nearly doubled farm income in the county.

AGENTS AWARDED THROUGH SUCCESS STORY CONTEST

An agricultural extension service farm success story contest has been planned by Oklahoma State University Extension Service and National Plant Food Institute.

Purpose of the agreement between the two agencies is to recognize county agents for outstanding news stories and bring the stories into statewide publication.

A \$10 award will be made each month within each of the five extension districts for the best farm success story, which will be picked from local newspaper clippings and then released through publications having statewide or regional circulation.

National Plant Food Institute will receive copies of the winning stories, and they will send the monthly award to the county agent.

An annual prize of \$150 and a plaque will be awarded to the agent who has prepared the story or stories judged best of the year. This prize will be awarded on the basis of quality and quantity of clippings mailed in during the year.

PAST PRESIDENTS KEPT ACTIVE

Past presidents of North Dakota County Agents Association are kept active by having four of them each year serve as directors of the state association. The feeling is that because of their many years of experience these men can add much to the association's board of directors.

The association's constitution was completely revised a year ago to make it possible for every district in the state to be represented by at least two agents.



Officers of N. D. County Agents Association are, left to right, Larry Iverson, president; John Logan, first vice president; Kermit Toepke, second vice president; Walter Mattson, third vice president; Wayne Owens, past president; Maurice Ellingson, past president; Alfred Bye, secretary-treasurer; Donald Hotchkiss, past president; and Vernon Nichols, past president.

GOOD PASTURE TOPS \$85 AN ACRE IN BEEF GAINS

What about returns from other uses of cropland? The agricultural feed grains program has released figures for diverted acres. By comparison, pastures produce attractive incomes. See what a few authoritative tests show.

EXPERIMENTAL RESULTS

Grazing tests on bluegrass and Ladino Clover at the University of Kentucky produced 390 pounds of beef per acre in a 227-day pasture season. This was on good quality land. On poorer land, the gain ranged from 200 to 300 pounds per acre, all without supplemental feeds. At average 1961 summer prices for beef, the Kentucky gains were worth more than \$85 an acre.

Two Southern Minnesota farmers produced equally attractive results in a much shorter grazing season. Their cattle were fed a limited ration



of grain, but the gains attributable to pasture were a very profitable 242 and 279 pounds per acre in a 160-day grazing season.

OTHER PASTURE ECONOMIES

Farm operating expenses are low and erosion is reduced when good land use practices are followed.

Labor produces four to six times as many dollars per hour in the production of pasture as it does raising corn and wheat.

Improved pastures plus good management provide business expansion without the necessity of investing in additional land.

FREE PASTURE BOOKLET

Get the facts on many profit-making pasture practices. They are thoroughly covered in *Pasture—How to Reduce Feed Costs*. This booklet reports many research studies plus recommendations for renovation, reseeding and grazing in many sections of the country. It is chock-full of information which every farmer and every potential farmer will value. We'd be happy to send you a free copy. Why not send to Keystone Steel & Wire Company, Peoria Ill., for your copy today?

Slash Capital Expense ... use **RED BRAND® FENCE**

There's more profit in pasture when you use long-lasting Red Brand Fence. The zinc coating is deep-fused right into the wire, so Red Brand gives years of superior rust protection. You'll actually spend less for maintenance and replacement—less for labor, less for materials.

Red Brand woven and barbed wire go together with Red Top® steel posts to give you the best looking, most serviceable fence you can buy. Red Brand is available nationwide, ready to boost pasture profits by decreasing fence costs.

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How to Reduce Feed Costs*

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Please send me your FREE booklet,
Pasture—How to Reduce Feed Costs

NAME _____
POSITION _____
ADDRESS _____
CITY _____ STATE _____



ag leaders audio-visuals



news and views by George F. Johnson

THERE IS A DIFFERENCE! I have observed motion picture presentations for more than 25 years—presentations with all kinds of equipment, by all kinds of operators, in all kinds of circumstances, and in front of all kinds of audiences. So, I say: "There is a BIG difference."

Differences according to my observations, arise from three basic factors:

1) There are differences in performance of the old versus the newer projectors made by the same manufacturers. These differences can really handicap a projectionist.

2) There are differences in projectors made by different manufacturers which show up especially with inexperienced operators.

3) There are unbelievable differences arising from different persons handling and operating the same projector.

First, let's take the difference in projectors made by the same manufacturer. New models come out from year to year and with few exceptions the newer models are improvements over the older ones. Certainly over a period of years, the new projectors provide better illumination, clearer sound, less noise, less weight, etc. Most experienced operators do an efficient job with such equipment. The question in the minds of many ag workers is this: When do we trade up to

new models in order to do a more efficient job? Most of us have an answer for our automobiles but what about movie projectors?

Let's face it, some ag workers are now handicapped by old "horse and buggy" movie projectors which sooner or later must be traded up to better equipment. Many county extension offices, for example, bought their present sound projectors before 1950 and some before 1940. Thanks to wise selection of this equipment, many are still giving trouble-free performance. The danger is that we will confuse "trouble-free" with "high efficiency" performance and continue owning old equipment beyond the point of sensible economy.

CHECK EFFICIENCY

One way to check the efficiency of an old projector is, of course, to arrange a demonstration of the latest models offered by several well-known manufacturers. Compare the old and the new on screen illumination in a semi-dark room, in ease of setting up and operating, in size and weight to carry, in volume and quality of sound, and in ability to handle defective film. Then ask the question: What is it worth to have the difference?

Now to our second point, that of differences in projectors made by different

manufacturers. These differences may be somewhat personal such as size, shape, color, etc. The differences may be noticed on the screen in the steadiness of the projected picture, in the sharpness of the picture, or in the brightness of the picture.

Differences may be in the ease of threading, focusing, rewinding, setting up the equipment, taking it down and packing in case, or in adjusting tone and volume of sound. Unfortunately, some differences don't show up until after several years of heavy use.

What does a movie projector really cost? One way to figure it is to add a reasonable depreciation or depletion charge plus upkeep plus cost of expendable parts for the year and divide this by the number of times used. In one state, we found this figure varied almost seven times between the lowest and highest cost per showing.

Why this big variation? Extension offices using a projector 100 to 200 times a year over a period of years, without need of expensive annual or biennial repair and service charges, were always in the lower cost bracket. One county office used a projector for 11 years, an average of 100 times a year without the need of special servicing.

If low usage and high upkeep charges result in a high per showing cost (perhaps \$1.50 or more), the answer is a change as soon as budget will permit to a projector with a better history of low maintenance cost and then use it more.

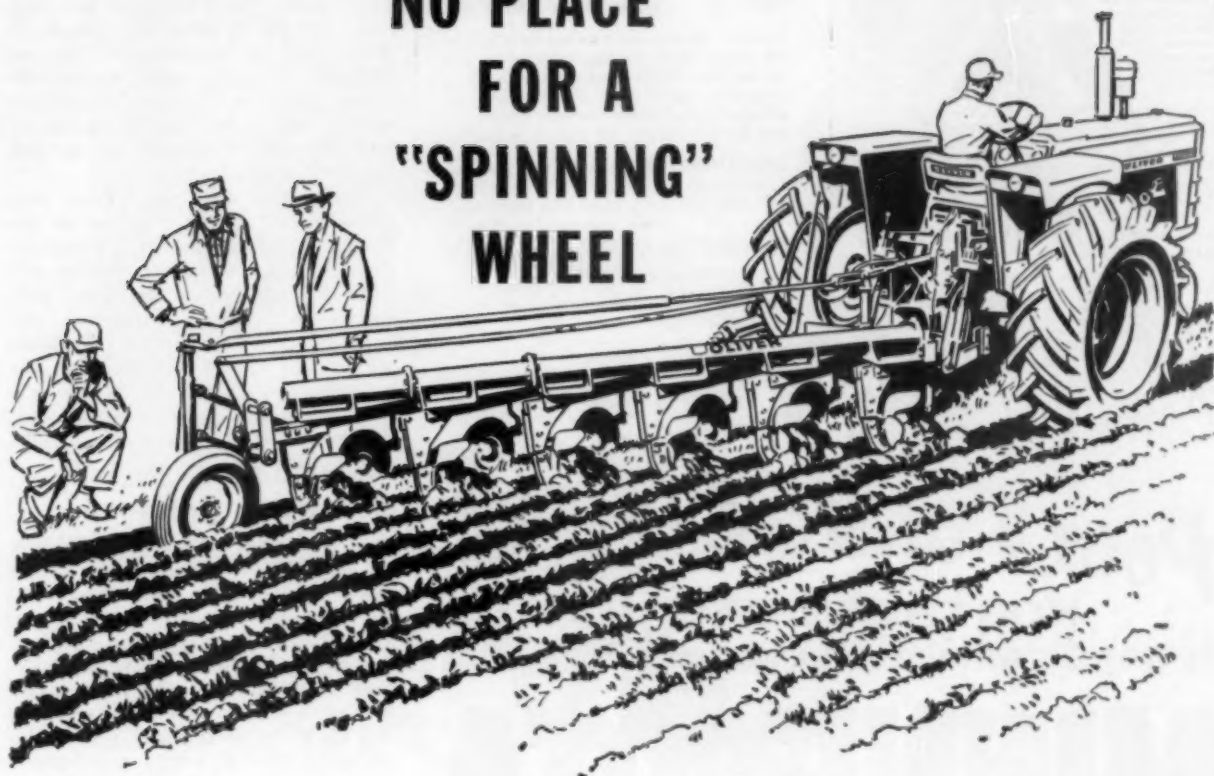
Low maintenance cost and prompt service are being given increasing attention by projector manufacturers. For example, Bell and Howell, a leading maker of quality sound projectors, stresses the "trouble-free" life of their most recently announced models.

They also point out that if any part of the projector is damaged, unit replacement is possible with a minimum cost and a reduction in time necessary to have the projector out of service. This is an important point because most ag leaders have only one projector and when it is away being serviced, film



A rugged, trouble-free, portable projector is a "must" for ag workers.

NO PLACE FOR A "SPINNING" WHEEL



When the going's tough this stout Oliver 1800 takes a full, firm grip—moves down-field surely and smoothly with the biggest load. It doesn't just sit, spinning its land wheel and getting nowhere. No fuel wasted—no needless tire wear.

The 1800's high draft comes from perfect balance—more than 4 tons of live, built-in weight matched to brisk, 6-cylinder power. In nationally recognized tests it pulled up to 57% more on the drawbar than other tractors in its class. And, during the same official trials, it set an all-time high in gasoline economy.

That isn't all. In a supervised *field-per-*

formance run the Oliver 1800 breezed along with 6 bottoms at 4.17 m.p.h. in third gear, plowed 3.38 acres of heavy silt loam 7 inches deep in one hour—with no times-out for turns.

At its Charles City, Iowa, plant—where the tractor industry was founded 60 years ago—Oliver builds farm power in a size and type to fit any acreage. Your neighborhood Oliver dealer is the source of these *efficiency-proved* prime movers, plus a broad range of agricultural machines. His counsel is at your call—and so is his cooperation when equipment and shop facilities are needed for educational projects.

OLIVER CORPORATION, CHICAGO 6, ILLINOIS

OLIVER



BOSTROM IMPROVED FARM LEVEL

Accurate, Durable and Complete for Trenching, Ditching, Tile Draining, Grading, Turning Angles, Running Lines, etc.



This No. 2 Farm Level has 12-Power Telescope. It is used and endorsed by Schools, Extension Service and Individual Landowners everywhere.

Anyone can operate a BOSTROM Level by following the simple direction booklet included with each instrument. Our No. 4 Contractors' Level and No. 5 Convertible Level feature 16-Power Telescopes. All Bostrom Levels are sold on the guarantee of satisfaction or money back. WRITE TODAY for literature, prices and name of our distributor near you.

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How to Succeed in Today's Dairying with

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Dairymen in your territory can earn highest net income with Registered Guernseys. Get all the facts—FREE—and you'll learn why... adaptable, easy-to-handle, efficient Guernseys are the key to highest net dairy profits... and the best choice for today's dairymen!

FREE LITERATURE Judging aids, pictures. Literature on Registration, "Profitable Dairying", and Golden Guernsey Milk Business.

WRITE TODAY—

The AMERICAN GUERNSEY CATTLE CLUB

44 Main Street, Peterborough, N. H.

showing must await the projector's return.

Our third point is simply that differences arise from different persons using the same projector. You can buy a projector with a reputation for low maintenance cost and still get high cost. But the responsibility usually is NOT with the manufacturer. Let me explain. "Banging around" means different things to different people. One worker will handle the projector as carefully as his watch, and another will handle it more as a football.

One worker will drive his car with the projector carefully placed in the trunk, as though the trunk contained eggs in a basket; another worker will place the machine in the trunk, half tipped over on a fertilizer bag, and drive as though the trunk were filled with rocks. One worker will set the projector down on a table as though it were expensive China glass; another will set it down as though it were made of solid metal.

DIFFERENCES IN SHOWING

Another aspect of this difference is in the showing itself. One worker comes to the meeting place 30 minutes early. He arranges the chairs for optimum viewing, elevates and places screen to the best advantage of the audience, locates projector in the most favorable place, checks outlets and switches, sets up projector completely with film threaded, sized to screen, and focused sharp. His presentation is "tops" from start to finish or at least the very best the projector can deliver.

Another worker comes to the meeting minutes late with no chance to locate chairs and screen to advantage of anyone, and no knowledge of outlets and switches. He sets up projector after being introduced to present his program. In his haste, the first minute of the film is run with the room lights on; two minutes go by before the picture is brought into any semblance of focus; three minutes pass with the sound too high or too low, and the whole presentation is given without the entire picture ever fitted properly to the screen. This can happen regardless of the efficiency of the projector itself.

So, I repeat, "There IS a difference!" Add together all the differences I have mentioned and you compound the problem. However, we can do three things: 1) Buy reliable, efficient equipment, 2) insist upon careful treatment of the equipment, and 3) avoid inexcusably careless presentations of film to the public.

WHAT'S NEW

The Bell and Howell Filmsound Specialist Model 542 16 mm motion picture projector, recently an-

(Continued on page 24)

Out of the North Comes a Cure for

Poor Potato Crops!

NORTHERN GROWN

BY GROWERS WITH INTEGRITY, KNOW-HOW AND SUPERVISION

MINNESOTA Certified SEED POTATOES

THE SEED FAR ABOVE PAR!

FIRST CHOICE of the men who know Seed Potatoes!

- STRICT FIELD AND SEED INSPECTION
- BETTER FIELDS • BIGGER YIELDS!

NEW FREE FOLDER . . . Tells why you'll have a better crop of potatoes, when you plant MINNESOTA CERTIFIED SEED POTATOES.

WRITE TODAY FOR COMPLETE LIST OF MINNESOTA CERTIFIED SEED POTATO GROWERS . . . IT'S FREE!



STATE OF MINNESOTA DEPT. OF AGRICULTURE

SEED POTATO CERTIFICATION-620-S STATE OFFICE BLDG., ST. PAUL 1, MINN.

| EXPERIMENTAL AND FIELD DATA | | | |
|--------------------------------|-------------|-------------|-------------|
| | OATS | WHEAT | BARLEY |
| TREATED | 65.3 BU. | 44.4 BU. | 50.6 BU. |
| UNTREATED | 4.6 BU. | 39.8 BU. | 39.9 BU. |
| DIFFERENCE | +8.7 BU. | +4.6 BU. | +1.6 BU. |
| COST OF TREATMENT | \$.20 | \$.10 | \$.15 |
| INCREASED PROFIT PER ACRE | \$5.22 | \$9.20 | \$9.54 |
| YOUR EXTRA PROFIT PER ACRE | \$5.02 | \$9.10 | \$9.39 |



Increase farm income \$25,000 to \$300,000 per county with seed treatment

"Best way I know to put \$25,000 of extra spending money into my home county would be to treat all the small grain seed with a good seed treatment," says Danny Lamb, Swainsboro, Ga., winner of the 1960 Georgia Crop Improvement Project Award.

Danny's work shows that income from oats can be increased by \$5 per acre with seed treatment . . . wheat by \$9.10 . . . and barley by almost \$9.40. This figures out to well over \$25,000 for the small grain acreage in his home county.

Counties with larger acreages in small grains, cotton, sorghum, flax, and peanuts can reap still bigger benefits . . . as high as \$300,000 per county for the high-producing grain counties of the Great Plains.



MORTON CHEMICAL COMPANY

Agricultural Division • 110 N. Wacker Drive
Chicago 6, Illinois

You can help increase farm income in your county by telling more farmers about the benefits of seed treatment. Morton Chemical Company, makers of Panogen seed fungicide, Drinox seed insecticide, and Pandrinex dual-purpose treatment will help. They'll provide booklets, films, and other helpful materials. Use the coupon below to request information.

Don't let farmers in your county miss out on the extra crop yields and bonus income that seed treatment can bring. Tell them the seed treatment story hard and often!

MORTON CHEMICAL COMPANY

110 N. Wacker Drive
Chicago 6, Illinois

Send me full information on materials available to promote seed treatment with farmers in my area.

NAME

TITLE STUDENT ☐

ADDRESS

new ideas and products

PHOTO FILER

Keep your slides ready for quick reference and use. The Multiplex photo slide filing system provides orderly classification, convenience, and protection against loss or damage.



The door of the cabinet opens down making a shelf on which the panels slide out for easy insertion and removal of slides. Various sizes and models are available to fit your individual needs.

L. C. Long of Multiplex Display

Fixture Company, 4301 Warne St., St. Louis 7, Mo., will be glad to send you Slide Cabinet Bulletin LS-158 which gives complete specifications.

CORN PICKERS

Tell the farmers in your area about Ford's new line of corn pickers. These machines are designed for greater picking capacity with higher shields to prevent loss of ears. The pickers have deeper corn elevators to permit delivery of more corn to the husking bed. This



new engineering provides the improved performance necessary with ever-increasing corn yields.

Why not write to L. R. Shannon, Ford Motor Company, Tractor and Implement Div., Birmingham, Mich. for the additional information you will want.

SLIDE PROJECTOR

Here is a new kind of slide projector that gives still pictures the flowing continuity of movies. One slide slowly fades from the screen as another takes its place giving the "lap dissolve" effect of a professional motion picture.



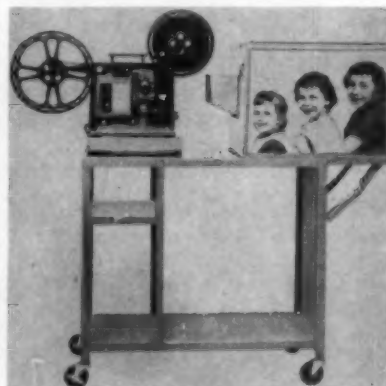
Dramatic results can be achieved, such as lines spurting across a graph or chart, a piece of equipment taking shape part by part, flowers opening or closing, or a picture taking form color by color.

For the additional information you will need, write to Bruce S. Odom, Bell & Howell Company, 7100 McCormick Rd., Chicago 45, Ill.

REAR PROJECTION UNIT

Now you can show motion pictures, slides, and filmstrips without darkening the classroom. The Wilson Rear Projection Unit provides the centralization of all elements necessary for projection into one compact portable package for quick, efficient utilization.

The big 18x24-inch lenticular screen gives you sharp, brilliant pictures with good contrast and maximum viewing angle in lighted rooms.



For additional information on this unit, our readers may contact Russell Parker, H. Wilson Corporation, 546 W. 119th St., Chicago 28, Ill.

COUNTY AGENT AND VO-AG TEACHER

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This dry-land seed, grown in the far North has the reputation of making big crops of good quality in practically all commercial producing areas in the Nation.

Buy 'Em Now

CAR LOTS — TRUCK LOTS

STATE SEED DEPARTMENT

N.D.S.U. Station
Fargo, North Dakota



booklet-bulletin reviews

Publications listed on this page may be obtained free of charge by sending a post card request to the company or manufacturer named. Be sure to say you saw it in County Agent & Vo-Ag Teacher.

Audio-Visual Aids

IMPROVED PROJECTOR

The Galaxy, claimed to have the first major changes in 16mm movie projectors in 20 years, has been introduced by Graflex, Inc. Among the design innovations which indicate operational simplicity are: Permanently attached folding reel arms; power operated rewind; color coded push button operation; standard microphone and phonograph input; and separate controls for bass, treble, and volume. For literature on the new Galaxy, write Graflex, Inc., Dept. 123, 3750 Monroe Ave., Rochester, N.Y.

EXPOSURE CONTROL

A new, simple-to-operate 35mm camera, which provides automatic exposure control for both daylight and flash pictures, has been announced by Eastman Kodak Company. Outdoor shooting with the new camera is made easy by a photo-electric control which automatically sets the correct lens opening in sun or shade. Indoors, an automatic flash exposure control sets the right lens opening as you focus anywhere from 5 to 25 feet. For more information, write Editorial Service Bureau, Eastman Kodak Company, Rochester 4, N. Y., for literature covering the Kodak Automatic 35B Camera.

PROJECTOR

Because of instructional needs and requirements of cost, the Kodak Pageant Projector is very popular in the teaching field. Simplicity of operation and easy threading are two of the features offered by the Pageant Projector. For details concerning the projector, write Eastman Kodak Company, Dept. 8-V, Rochester 4, N. Y., for Bulletin V3-22.

Livestock & Poultry

PASTURING HINTS

To get facts on many profit-making pasture practices, write Keystone Steel & Wire Company for their new booklet, *Pasture—How to Reduce Feed Costs*. This booklet reports many research studies plus recommendations for renovation, reseeding, and grazing in many sections of the country. Keystone Steel & Wire Company, Peoria, Ill., will be glad to send you a free copy.

GUERNSEYS FOR PROFIT

If you are interested in information on how to succeed in today's dairying with registered Guernseys, you'll want a copy of the literature being offered by American Guernsey Cattle Club. Judging aids, registration, profitable dairying, and the guernsey milk business are a few of the items covered. Request this free literature from American Guernsey Cattle Club, 44 Main St., Peterborough, N. H.

Chemicals

SULPHUR IS NECESSARY

Sulphur is a required nutrient! How sulphur fits into the plant nutrient and soil conditioning picture is outlined in a new illustrated Texas Gulf Sulphur Company brochure *Sulphur in Plants and Soils*. If you are interested in learning more about sulphur in growing crops, write Texas Gulf Sulphur Company, 75 E. 45th St., New York 17, N. Y.

Crops and Soils

SEED POTATOES

State of Minnesota Dept. of Agriculture is offering a folder on growing better potato crops through the use of Minnesota certified seed potatoes. They will also supply a complete list of Minnesota certified seed potato growers. If you're interested in learning more about growing potatoes, write State of Minnesota Dept. of Agriculture, Seed Potato Certification, 620-S State Office Bldg., St. Paul 1, Minn.

Tractors & Equipment

CHAIN SAWS

McCulloch Corporation is offering an illustrated color brochure covering their line of chain saws. One engine powers the chain saw and any one of the four different attachments as you need them. If you are interested in learning more about this full line of chain saws and attachments, write McCulloch Corporation, Dept. CA-30, 6101 W. Century Blvd., Los Angeles 45, Calif., for literature.

WELDERS

Literature is being offered by Lincoln Electric Company covering many items in their arc welding equipment line. Among these are the AC-180-S which is used in small shops; the Lincoln Idealarc 250 which supplies both AC and DC current; and the Lincoln Idealarc Tig, most versatile machine for shops using heliare and other gas processes. For details on this equipment write The Lincoln Electric Co., Dept. 4231, Cleveland 17, Ohio, for literature.

HEAVY DUTY TRACTORS

M-R-S Manufacturing Company has available literature on their new line of heavy duty, four-wheel drive, four-wheel steer agricultural tractors. The present line consists of two models—the 91.5 drawbar horsepower A-90 and the 120.6 drawbar horsepower A-100. Both models are equipped with ten speed constant-mesh transmissions which provide seven

Get acquainted with the New Products

on page 22

- Rear Projection Unit
- Corn Pickers
- Slide Projector
- Photo Filer

working speeds up to 10 mph. Other mechanical features include four-cycle diesel engines, spiral bevel gear, and pinions and planetary final drives. Free literature covering details on the new tractor line may be secured from M-R-S Manufacturing Company, P. O. Box 199, Flora, Miss.

Structures

ALUMINUM FOR BUILDINGS

Proof of Performance is a new booklet containing reports from tests comparing aluminum with other farm building materials. Most of the tests were conducted by agricultural colleges and farm extension centers. Thirty-six pages long, the booklet includes tests involving dairy and beef cattle, swine, and poultry. Geographically, the 13 tests range from the Chesapeake Bay area to the Pacific Northwest. *Proof of Performance* is available on request from PRD 57, Reynolds Metals Company, Richmond 18, Va.

ROOFING AND SIDING

Instruction manuals are being offered by American Zinc Institute on the use of galvanized roofing and siding for protection from fire and rats. Properly grounded galvanized steel sheets should be used for a strong, sound, leak-proof roof. For your free instruction manual, write American Zinc Institute, 324 Ferry St., Lafayette, Ind.

Miscellaneous

IMPROVED LEVEL

To answer problems of terracing, ditching, irrigating, grading, etc., Bostrom Brady Mfg. Co. is offering literature covering its new improved Bostrom farm level. The new level has a 12-power telescope. This model is endorsed by the extension service and individual landowners. For more information, write to Bostrom-Brady Mfg. Co., 528 Stonewall St., S.W., Atlanta 3, Ga.

SADDLE KITS

A 112-page catalog on ready-to-assemble saddle kits is being offered by Tandy Leather Co. All the parts for the saddles are pre-cut, including the stirrups. The saddles have double rigged 15-inch seats, Cheyenne rolls, and full size fenders. For your catalog of easy-to-make saddles, write Tandy Leather Co., P. O. Box 791-FS Fort Worth, Tex.



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Isn't everybody? RAIN BIRD sprinklers are internationally recognized as the finest in the field. Engineered to meet specific irrigation requirements, Rain Birds have built-in dependability and long, trouble-free operation. They embody the latest scientific developments.

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The only saddle in the world that anyone can complete. Fits your horse and you too! **SAVE BIG MONEY!** Double rigged, 15" seat, all parts pre-cut, including stirrups. Cheyenne roll, full size leathers, easy instructions. Write today—FREE 112 PAGE CATALOG.

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COUNTY AGENT & VO-AG TEACHER
Willoughby, Ohio

Audio-Visuals ...

(Continued from page 20)

nounced, has many advance features over previous models.

Improvements in the 1000-watt projection bulb, in the condensing system, and in the speed and efficiency of the lens give twice the screen brilliance of older models. This added illumination makes possible projection of color film in semi-dark rooms and greatly improves visibility in all sections of a meeting room. The extremely fast, 2-inch f/1.4 lens is standard equipment with this model.

One unique feature of this projection lens is that a "Filmovara attachment" is available so that the projectionist can change the size of the picture without moving the screen or the projector. To say it another way, you can fill a 4-foot screen at about 20 feet in one room and at about 28 feet in another room thus assuring a better setup in each room.

Another simplification attained in this projector is that of tone control. Instead of leaving tonal quality of the

of these improvements is the automatic lower loop "restorer" which assures the correct lower loop diameter of the film at all times. Another task made easier is focusing. An easily accessible dial greatly simplifies the job of attaining real sharpness of the image on the screen. Threading film through the projector has also been made relatively easy and almost foolproof. A three-claw mechanism enables the projector to handle damaged film better than previous models.

The projector is lubricated at the factory and requires no oiling. Likewise all bearings are factory sealed for long trouble-free life.

This projector also has facilities for projecting a single frame of the movie film as a still picture. Another model (No. 540) is being marketed with a 750-watt lamp and a 2-inch f/1.6 lens but without facilities to project a still picture.

These projectors come in a convenient, self-contained unit measuring 15 x 13 x 10 inches, almost 450 cubic inches smaller than previous models. It weighs 29 pounds, 9 pounds less than previous models. This size and weight are distinct advantages for agricultural workers who must constantly transport projectors from meeting to meeting. The projector is termed by the manufacturer as "the easiest projector in the world to set up."

Further information may be obtained from your local Bell and Howell dealer or from Bell and Howell, 7100 McCormick Rd., Chicago 45, Ill.

★ ★ ★ ★ ★

WHAT'S COMING UP

November 2-3. Pacific Northwest Plant Food Association, annual convention, Hotel Gearhart, Gearhart, Oregon.

November 17-23. National Farm-City Week.

November 26-30. National 4-H Club Congress, Chicago.

December 2-8. National Vocational Agricultural Teachers Association, convention, Kansas City, Mo.

December 11-14. North Central Weed Control Conference, Weed Society of America, St. Louis.

December 12-14. Missouri annual extension service conference, Columbia.

December 13-15. American Society of Agricultural Engineers, winter meeting, The Palmer House, Chicago, Ill.

January 3-5, 1962. Northeastern Weed Control Conference, annual meeting, Hotel New Yorker, New York, N. Y.

January 17-19. Southern Weed Conference, Hotel Patten, Chattanooga, Tenn.

January 31-February 1, 1962. New Hampshire Poultry Health Conference, University of New Hampshire, Durham, N. H.

June 17-20. American Society of Agricultural Engineers, fifty-fifth annual meeting, The Mayflower Hotel, Washington, D. C.



Improvements have been made to assist especially the inexperienced operators.

sound entirely to the judgment (and concern) of the operator, the tone control has three major positions. One position is for a large auditorium which does not have the best acoustics; another is for film emphasizing good music; and the third position is the ideal adjustment recognized as standard for 95% of sound movie films.

This projector has an acoustically mounted oval speaker built into the front of the projector case. Accessory speakers of two different types are available as auxiliary units. However, the built-in speaker is designed to provide plenty of volume for the average-size auditorium.

Improvements have been made to assist the inexperienced operator. One

vo-ag news

HOWARD GOES TO JORDAN

New director of the Rural Resources Development project of Near East Foundation in Amman, Jordan, is a former vo-ag instructor and state supervisor of vocational agriculture. Emory Howard, a native son of Idaho, left his post as supervisor with the Idaho State Board of Vocational Education to take up his new position in Jordan in August. His wife and two daughters accompanied him.

Howard first became interested in



Emory Howard is shown doctoring the hand of a native while he was working with Near East Foundation on a community project in Ghana.

working with the people in the newly developing countries of the world in Ghana, West Africa, where he supervised the construction of roads, bridges, and schools. His new project is developing programs in fruit tree and grape vineyard planting, poultry improvement (some 25,000 chicks a year are being hatched for distribution), artificial insemination, and other improved animal husbandry methods with cows, goats, and sheep.



Minnesota Vocational Agriculture Instructors Association officers for 1961-62 are (left to right): Dewain Englund, Canby, president; Paul M. Day, Faribault, president elect; Dennis Lehto, Evansville, vice president; Marvin Thomsen, Pipestone, secretary; W. O. Woodman, Rochester, treasurer; Harry Peirce, Jr., Winona, membership secretary.



Dr. Earl H. Knebel, former superintendent of schools at Cameron, Tex., became professor and head of Texas A & M College department of agricultural education September 1.

TEAMWORK PAYS

A problem that confronted the agricultural extension service in St. Joseph County, Indiana, was the lack of tables to be used for 4-H exhibit purposes and other extension activities.

Dwight E. Miller, assistant county agent, in talking with a 4-H leader who was a high school shop teacher suggested that tables could be constructed by using interior house doors for the table tops. The 4-H leader, Hubert T. Blair, had several students who were 4-H members, and volunteered their services.

The group purchased 125 interior house doors ($2\frac{1}{2} \times 6\frac{2}{3}$ feet) of oak, birch, and mahogany veneer. A cross piece $1 \times 6 \times 20$ inches was used at each end of the table top on the under side as a brace and served to mount the metal folding table leg brackets (Larson No. 1200).

The legs were cut out of 2×4 's with a gradual taper on one side. A wood sealer was used as finish and sealer on the table tops and legs. The material cost approximately \$8 per table.

The table rental for the county fair alone amounted to \$200 per year, and so with the success of this venture, 50 additional tables will be constructed for use next year.

IDEAS vo-ag can use

"One thing we use in the vo-ag department as an interest center is a glass-enclosed case with light inside," reports Kenneth Russell. "We display awards, new products, news items, etc., that are of interest to FFA members."

—From NVATA Newsletter, Region IV.



The boys of Path Valley FFA chapter (Future Farmers of America) at Fannett-Metal Union High School, Willow Hill, Pa., are the proud owners of a new Ford tractor. The chapter won the tractor by outselling over 1500 FFA chapters in a nationwide sale of vo-ag tractor cushions. The boys' advisor, Paul Tate, and State Supervisor of Agricultural Education J. C. Fink are shown at right. Next year tractors will be awarded to top chapters in five regions.

in summing up

Operation Clod-buster

ARE the following questions just "rank heresy" (nothing uncommon to this page!) or something worthwhile to consider . . .

Should we move the FFA convention to New York City for a change? Not permanently, understand (even if it could be done), but just every five years or so?

Why not a vocational agricultural leader on the newly-formed Commission on Career Opportunities for farm and rural-reared youth?

When will we stop talking and start *doing* something about farm youth?

Is the ag college student inferior?

It's been a long time since New York witnessed anything like the county agent convention held in September at the Waldorf-Astoria. Here's what a waiter passed along to the speakers' table during the annual banquet:

"It's nice to have this kind of a group in New York City. We have enjoyed it. It sort of restores one's faith in America. Sometimes here in New York we have some doubts."

This got me to thinking. We hear a lot about "people-to-people" programs for the under-developed parts of the world. Actually, such a program between urban and rural people within our own borders is just as sorely needed!

Wouldn't it be something if, for a change, the FFA convention could be held in the greatest city in the nation? These FFA kids are the finest ambassadors for agriculture that we possess! Untold *good* might result. And it certainly would be an *education* for these youngsters.

In fact, vo-ag teachers would do well to start pushing New York City, too, for a coming AVA convention. County agents will be talking for a long time about the marketing lessons they received in the world's largest farm market center. It made them realize how really *big* agriculture is!

Farm kids don't look much different from their city cousins anymore. Even the sure "give-away" in the past—the lumbering gait—is fast-fading. Only the FFA jacket makes them different in outward appearance. It's when New Yorkers begin to talk to these boys and really *observe* them that the never-to-be-forgotten impressions will be made!

One development that will make rural youth even less distinguishable in the future is the projected manpower training program that we have been several months ahead of all other media in reporting. Along the same line, just before going to press we heard that National Farmers Union President James G. Patton announced the appointment of a Commission on Career Opportunities for farm and rural-reared youth. In making the appointment, he said:

"In spite of valiant efforts of rural states and the individual efforts of rural families to provide their

children with education and training equal to that afforded in urban-industrial areas, too frequently rural youth seeking careers off the farm are disadvantaged.

"The great vocational training programs devised early in this century based upon important continuing federal legislation have made permanent contributions to the economy, but face an even greater opportunity in the decade ahead."

I am merely reporting this new development for *what it's worth*. Personally, I view it with the usual jaundiced eye, as many of you no doubt will. The NFU is enjoying a newly-won "status" on the Hill, however, and it must be recognized that Patton wields a big stick. You should know that he's calling for an intensive review of our educational and training resources in rural areas.

Patton has named eight people to the commission. Here's where he really has me stumped! Many of these people are unknown quantities to me. Not a single vocational agricultural leader has been asked to serve on this all-important commission!

Dr. M. D. Mobley, executive secretary of American Vocational Association, and Prof. Lee R. Martin, department of agriculture economics and rural sociology at University of Arkansas, come the closest to being "vocational agriculture consultants."

Now, let's get back to the main issue—farm youth. We've discussed their outward appearance and their personalities. Next questions are: Are they inferior? Are we losing bright farm boys to other fields?

These questions were asked—and answered—by John Strohm, formerly with *Country Gentleman* and now president of Publications, Inc., during a National Study on Agribusiness Education Symposium at Michigan State University last March.

"I don't honestly know," Strohm answered, "but I do know that today students in other schools on the campus rank the clod-busters as pretty low on the intellectual totem pole. And ag students themselves, who ought to know better, I believe, are as self-conscious about this as a dirty shirt."

If only farm and rural-reared kids realized what a valuable birthright they have! All of us, and especially our federal training program, can do something to erase this self-consciousness that is holding up their development. I think some of the "rank heresy" (or whatever you want to call it) on this page ought to be considered in this regard.


Editor

COUNTY AGENT AND VO-AG TEACHER

HIS HOME-MADE AIR COMPRESSOR SPEEDS ON-THE-JOB REPAIRS!



Building his own labor and time-saving devices, such as the air compressor shown here, is the worthwhile hobby of Rodney J. Breaux, who farms 850 acres near Welsh, Louisiana.

Starting with the base of an old compressor, Mr. Breaux made the air tank from a four-foot length of 16" pipe. The compressor was connected to the tank with copper fittings and tubing. He removed the drive pulley and replaced it with a universal joint and power take-off adapter.

"I find my compressor indispensable for making quick repairs in the field during harvest time," Mr. Breaux says. He uses it for lubricating field machinery, inflating tires, spraying insecticides, painting and many other chores.

This progressive farmer has been a user of Texaco fuels and lubricants for many years, because he has found them best for farm equipment. He knows he can depend on Marfak lubricant to form a tough collar around open bearings, sealing out dirt and moisture.

PHOTO SHOWS Mr. Breaux using a pneumatic greasing unit with his air compressor, which is powered by his tractor.



HE PREFERS HAVOLINE!

W. E. Church, who farms 455 acres near Woodburn, Kentucky, uses Texaco Products for fueling and lubricating his costly equipment. He prefers Advanced Custom-Made Havoline Motor Oil, for example. Havoline's exclusive combination of detergent additives prevents harmful engine deposits and wear. For this reason, engines deliver full drawbar power, and more fuel mileage. Left to right in photo are Texaco Consignee Roy Phillips,

W. E. Church and his son, B. E. Like farmers everywhere, Mr. Church has found that it pays to farm with Texaco Products.



BUY THE BEST..BUY TEXACO

TUNE IN TO THE HUNTLEY-BRINKLEY REPORT, MONDAY THROUGH FRIDAY, NBC-TV



Some answers for the man who wants a bigger milk check

✓ **CAN I EQUIP MY MILKING ASSEMBLY WITH NARROW BORE INFLATIONS?**

ANSWER: Yes, Universal has designed this special type of inflation for better udder protection and faster milking.

✓ **WHAT ARE THE MOST PRACTICAL TYPE OF STALLS?**

ANSWER: Universal Side-opening Tandem is best for individual cow control; Universal Herringbone is best for one-man operation with more cows in less time.

✓ **CAN FEEDING BE DONE AUTOMATICALLY WHILE MILKING?**

ANSWER: Merely turn a switch to start the motor, and feed is delivered to each cow being milked, automatically, in the correct proper amount with the Universal Feed Conveyor. Simple, inexpensive to install. A great time and work saver. Speeds your milking operation.

✓ **WHY SHOULD I HAVE A MINI PULSE MASTER PULSATOR?**

ANSWER: Because the new Uni-Pulse developed by Universal assures positive uniform pulsation and is another advancement in labor-saving efficiency in milking. It eliminates the handling of up to a half dozen high pulsators while milking.

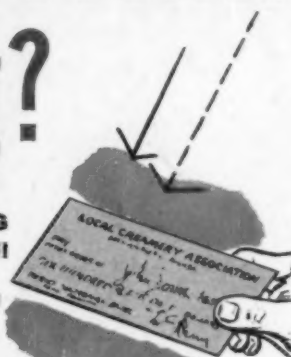
✓ **WHO MAKES UNIVERSAL MILKING?**

ANSWER: Universal, a farmer-owned operation with newly expanded plant at Albert Lea, Minnesota, has set the pace in milking equipment for nearly half a century. Modern production facilities combined with larger engineering staff and numerous testing farms produce the finest, most economical and complete line of dairy equipment.

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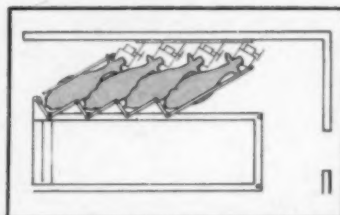


WITH UNIVERSAL...

You Can Milk More Cows In Less Time!

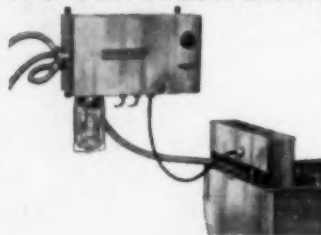
Proper planning with Universal equipment can mean considerable improvement of your milking operation. Not only is there greater savings in time and labor, but also in space, installation and operating cost.

For example, with the Universal Herringbone type milking parlor, one man can operate up to six stalls on each side in the milking period. Starting with two sets of four stalls to handle eight cows, more stalls can be added for increased production.



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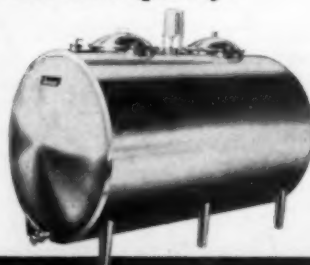


Another time and labor-saving feature by Universal. Just set the dial and leave the barn. Klean-O-Matic automatically fills, rinses, mixes cleanser, washes and drains your pipeline system. Air injection vacuum washing, automatically controlled, creates high velocity turbulence for mechanical cleaning action as well as chemical cleaning and sanitizing; also reduces cleanser requirements, hence lower operating cost.

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Milk drawn through the pipeline by vacuum into the Universal bulk tank for cooling and storage retains maximum quality until pick-up. With Universal pipeline milking you get complete protection from cow through storage. Universal VACUUM milk storage eliminates need of a separate releaser unit or milk pumps for quicker and more efficient milk handling.



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